

WHAT IS CLAIMED IS:

1. A status discriminating apparatus of human, animal, machine or the like using ultrasonic vibration detecting sensor comprising an ultrasonic vibration detecting sensor composed of a container main body, a liquid packed tightly in the container main body, and an ultrasonic vibrator for transmitting ultrasonic wave into the liquid and receiving ultrasonic wave reflected from the liquid surface, for detecting the behavior of a human subject to be detected, an ultrasonic transmission and reception control device composed of an ultrasonic transmitter/receiver, a signal converter, and a microcomputer, for issuing a transmission signal at every specific time interval to the ultrasonic vibration detecting sensor, receiving a reception signal at every specific time interval from the ultrasonic detecting sensor, and calculating the risk of the detection object of the ultrasonic vibration detecting sensor such as human, animal, machine or the like from the change of maximum amplitude of the input reception signal, and a cable for coupling the ultrasonic detecting sensor and ultrasonic transmission and reception control device, and forming an input and output passage of transmission signal and reception signal.

2. The status discriminating apparatus of human, animal, machine or the like using ultrasonic vibration detecting sensor according to claim 1, wherein the microcomputer of the ultrasonic transmission and reception control device is designed as a microcomputer for compiling time series data of maximum amplitude

values of reception signals entered at specific time interval from the ultrasonic vibration detecting sensor, calculating the standard deviation about the change point of a specific number of maximum amplitude values, extracting the spectrum peak by fast Fourier transform of waveform of the time series data, and calculating the human risk by fuzzy If-Then rule from the standard deviation and spectrum peak.

3. A status discriminating method of human, animal, machine or the like by a status discriminating apparatus of human, animal, machine or the like using ultrasonic vibration detecting sensor, being a status discriminating method of human, animal, machine or the like using ultrasonic vibration detecting sensor for detecting the status of human, animal, machine or the like by detecting a vibration caused by behavior of human, animal, machine or the like by an ultrasonic vibration detecting sensor, and microcomputer, and calculating the reception signal detected by the ultrasonic vibration detecting sensor by a microcomputer of an ultrasonic transmission and reception control device, comprising the steps of compiling time series data of maximum amplitude values of reception signals detected at specific time interval by the ultrasonic vibration detecting sensor, normalizing the time series data to form analytical data, calculating the standard deviation about the change point of maximum amplitude values in a specific number of reception signals of the analytical data, extracting the spectrum peak of ultrasonic wave by fast Fourier transform of waveform of the analytical data, calculating the human risk by

applying the calculated standard deviation and extracted spectrum peak to fuzzy If-Then rule, and discriminating normal or abnormal status of human, animal, machine or the like from the calculated value of the risk.

4. The status discriminating method of human, animal, machine or the like by a status discriminating apparatus of human, animal, machine or the like using ultrasonic vibration detecting sensor according to claim 3, wherein the human risk is calculated by using a membership function expressing fuzzy If-Then rule.

5. The status discriminating method of human, animal, machine or the like by a status discriminating apparatus of human, animal, machine or the like using ultrasonic vibration detecting sensor according to claim 3, wherein the microcomputer of the ultrasonic transmission and reception control device transmits transmission pulses and reception permit pulses to the ultrasonic transmitter/receiver at every specific time interval, and controls transmission of ultrasonic wave from the ultrasonic vibration detecting sensor and acceptance of reception signal of ultrasonic wave from the ultrasonic vibration detecting sensor.